

CLAIMS:

1. A control apparatus for enabling a user to control
by spoken commands a function of a processor-controlled
5 machine couplable to speech processing apparatus, the
control apparatus comprising:

receiving means for receiving dialog interpretable
instructions derived from speech data processed by the
speech processing apparatus;

10 dialog communication means for interpreting received
dialog interpretable instructions using a dialog
compatible with the processor-controlled machine and for
communicating with the processor-controlled machine using
the dialog to enable information to be provided to the
15 user in response to received dialog interpretable
instructions, thereby enabling a dialog to be conducted
with the user;

dialog determining means for determining from
information provided by the processor-controlled machine
20 the dialog to be used with that processor-controlled
machine; and

machine communication means for communicating with
the processor-controlled machine to cause the processor-
controlled machine to carry out a function in accordance
25 with the dialog with the user.

2. A control apparatus according to claim 1, wherein the control apparatus is couplable to a network and the dialog determining means is arranged to determine the location on the network of a file for that dialog.

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3. A control apparatus according to claim 1, further comprising storing means for causing the dialog to be stored in a dialog store of the control apparatus.

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4. A control apparatus according to claim 1, comprising means for determining, using information provided by the processor-controlled machine, functions available on that machine.

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5. A control apparatus comprising a JAVA virtual machine for enabling a user to control by spoken commands a function of a processor-controlled machine couplable to to speech processing apparatus, the JAVA virtual machine comprising:

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receiving means receiving dialog interpretable instructions derived from speech processed by the speech processing apparatus;

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dialog communication means for interpreting, using a dialog compatible with the processor-controlled machine, received dialog interpretable instructions,

a dialog communicating means for communicating with the processor-controlled machine using the dialog to enable information to be provided to the user in response to received dialog interpretable instructions, thereby enabling the processor-controlled machine to conduct a dialog with the user;

dialog determining means for determining from a device class determined from information provided by the processor-controlled machine the dialog to be used with that processor-controlled machine; and

machine communication means for communicating with the processor-controlled machine to cause the processor-controlled machine to carry out a function in accordance with the dialog with the user.

6. A control apparatus according to claim 5, wherein the control apparatus is couplable to a network and the dialog determining means is arranged to determine from the device class the location on the network of a file for the dialog for that processor-controlled machine.

7. A control apparatus according to claim 5, further comprising storing means for causing the dialog to be stored in a dialog store of the control apparatus.

8. A control apparatus according to claim 5, comprising function determining means for using the JAVA reflection API to determine from the device class information regarding the processor-controlled machine functions available on that processor-controlled machine.

9. A control apparatus for enabling a user to control by spoken commands a function of a processor-controlled machine couplable to speech processing apparatus, the control apparatus comprising a JAVA virtual machine having:

receiving means for receiving dialog interpretable instructions derived from speech data processed by the speech processing apparatus;

dialog interpreting means for interpreting, using a dialog compatible with the processor-controlled machine, received dialog interpretable instructions;

dialog communication means for communicating with the processor-controlled machine using the dialog to enable information to be provided to the user in response to received dialog interpretable instructions, thereby enabling the processor-controlled machine to conduct a dialog with the user;

device interface means for receiving from the processor-controlled machine information identifying or

representing the device class for that processor-controlled machine;

function determining means for using the JAVA reflection API to determine from the device class information regarding the processor-controlled machine functions available on that processor-controlled machine; and

machine communication means for communicating with the processor-controlled machine to cause the processor-controlled machine to carry out a function in accordance with the dialog with the user.

10. A control apparatus according to claim 5, having a job listener registering means for registering a job listener to receive from the processor-controlled machine information relating to events occurring at the machine.

11. A control apparatus according to claim 1, wherein a dialog has a number of dialog states and the dialog communication means is arranged to control the dialog state in accordance with received dialog interpretable instructions.

12. A control apparatus according to claim 1, wherein the dialog communication means is arranged to supply to

the speech processing apparatus information relating to the speech recognition grammar or grammars to be used for processing speech data in accordance with a dialog state.

5 13. A control apparatus according to claim 1, comprising audio data receiving means for receiving speech data and audio data transmitting means for transmitting received speech data to the speech processing apparatus.

10 14. A control apparatus according to claim 1, comprising network interface means for communicating with the speech processing apparatus over a network.

15 15. A control apparatus according to claim 1, comprising network interface means for communicating with a processor-controlled machine over a network.

20 16. A control apparatus according to claim 1, comprising remote communication means for communicating with a least one of the speech processing apparatus and a processor-controlled machine.

17. A control device comprising a control apparatus according to claim 1 and an audio input device.

18. A voice-control controller comprising a control apparatus in accordance with claim 1 and speech processing apparatus comprising:

speech recognising means for recognising speech in received audio data using at least one speech recognition grammar;

speech interpreting means for interpreting recognised speech to provide dialog interpretable instructions; and

transmitting means for transmitting the dialog interpretable instructions to the dialog communication means.

19. A processor-controlled machine arranged to be connected to a control apparatus in accordance with claim 1, wherein the processor-controlled machine comprises:

machine control circuitry for carrying out at least one function;

storing means for storing information for at least one of a dialog file and a device class;

a processor for controlling the machine control circuitry; and

means for providing said information to the control apparatus for enabling the dialog determining means to

determine the dialog to be used with the processor-controlled machine.

20. A processor-controlled machine arranged to be
5 connected to a control apparatus in accordance with claim
1, wherein the processor-controlled machine comprises;
machine control circuitry for carrying out at least
one function;

10 storing means for storing a device class for the
processor-controlled machine;

a processor for controlling the machine control
circuitry; and

15 means for supplying the device class to the control
apparatus.

21. A processor-controlled machine according to claim
19, capable of providing at least one of photocopying,
facsimile and printing functions.

20 22. A processor-controlled machine according to claim
19, comprising at least one of:

25 a television receiver, a video cassette recorder, a
microwave oven, a digital camera, a printer, a
photocopier, a facsimile machine, a lighting system, a
heating system.

23. A device couplable to a network comprising a processor-controlled machine in accordance with claim 19 and a control apparatus in accordance with claim 1.

5 24. A device according to claim 23, wherein the control apparatus, control device or controller is integrated with the processor-controlled machine.

10 25. A device according to claim 23, comprising a separate audio input device.

15 26. A system comprising a plurality of devices in accordance with claim 23, and a speech processing apparatus connectable to the devices via a network and comprising:

means for receiving audio data representing speech by a user;

speech recognition means for recognising speech in the received audio data;

20 speech interpreting means for interpreting the recognised speech to provide dialog interpretable instructions; and

25 transmitting means for transmitting the dialog interpretable instructions over the network to at least one of said devices.

27. A system according to claim 26, further comprising a look-up service connectable to the network.

28. In a control apparatus enabling a user to control by spoken commands a function of a processor-controlled machine couplable to speech processing apparatus, a method comprising;

determining from information provided by the processor-controlled machine a dialog to be used with that processor-controlled machine;

receiving dialog interpretable instructions derived from speech processed by the speech processing apparatus;

interpreting received dialog interpretable instructions using the determined dialog; and

communicating with the processor-controlled machine using the dialog to enable the processor-controlled machine to provide information to the user in response to received dialog interpretable instructions, thereby enabling the processor-controlled machine to conduct a dialog with the user.

29. A method according to claim 28, which comprises determining the location on a network of a file for the dialog.

30. A method according to claim 28, further comprising storing the dialog in a dialog store of the control apparatus.

5 31. A method according to claim 28, comprising determining from information provided by the processor-controlled machine functions available on that machine.

10 32. In a control apparatus comprising a JAVA virtual machine for enabling a user to control by spoken commands a function of a processor-controlled machine couplable to speech processing apparatus, a method comprising:

15 determining from information provided by the processor-controlled machine relating to or identifying a device class for that machine a dialog to be used with that processor-controlled machine;

receiving dialog interpretable instructions derived from speech processed by the speech processing apparatus;

20 interpreting received dialog interpretable instructions using the dialog; and

communicating with the processor-controlled machine using the dialog to enable the processor-controlled machine to provide information to the user in response to received dialog interpretable instructions, thereby

enabling the processor-controlled machine to conduct a dialog with the user.

33. A method according to claim 32, which comprises
5 determining from the device class the location on a
network of a file for the dialog for that processor-
controlled machine.

34. A method according to claim 32, further comprising
10 storing the dialog in a dialog store of the control
apparatus.

35. A method according to claim 32, comprising using the
15 JAVA reflection API to determine from the device class
information regarding the processor-controlled machine
functions available on that processor-controlled machine.

36. A method according to claim 28, wherein a dialog has
20 a number of dialog states and the dialog state is
controlled in accordance with received dialog
interpretable instructions.

37. A method according to claim 28, wherein information
25 relating to the speech recognition grammar or grammars to
be used for processing speech data is supplied to the

speech processing apparatus in accordance with a dialog state.

38. A method according to claim 28, further comprising receiving speech data and transmitting received speech data to the speech processing apparatus.

39. A method according to claim 28, comprising communicating with the speech processing apparatus over a network.

40. A method according to claim 28, comprising communicating with a processor-controlled machine over a network.

41. A method according to claim 28, comprising communicating via a remote communication link with at least one of the speech processing apparatus and a processor-controlled machine.

42. In a control apparatus comprising a JAVA virtual machine for enabling a user to control by spoken commands a processor-controlled machine couplable to speech processing apparatus, a method comprising:

receiving from the processor-controlled machine information regarding the device class for that processor-controlled machine;

receiving dialog interpretable instructions derived from speech processed by the speech processing apparatus;

interpreting, using a dialog compatible with the processor-controlled machine, received dialog interpretable instructions; and

communicating with the processor-controlled machine using the dialog to enable the processor-controlled machine to provide information to the user in response to received dialog interpretable instructions, thereby enabling the processor-controlled machine to conduct a dialog with the user; and using the JAVA reflection API to determine from the device class information regarding the processor-controlled machine functions available on that processor-controlled machine.

43. A computer program product comprising processor implementable instructions for configuring a processor to provide a control apparatus in accordance with any one of claim 1.

44. A computer program product comprising processor implementable instructions for configuring a processor to carry out a method in accordance with claim 28.

5 45. A signal comprising a computer program product in accordance with claim 43.

46. A storage medium carrying a computer program product in accordance with claim 44.

10 47. A computer program product comprising processor implementable instructions for configuring a processor to carry out a method in accordance with claim 32.

15 48. A computer program product comprising processor implementable instructions for configuring a processor to carry out a method in accordance with claim 42.

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